

**MAXIMIZING LEVERAGE OF
POLAND'S ENVIRONMENTAL FUNDS:
TOO GENEROUS OR TOO RESTRICTIVE?**

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ABSTRACT

In many countries, and particularly in the economies in transition in Central and Eastern Europe, public environmental funds play an important role in financing environmental investments. These funds provide subsidized financing through grants and soft loans in response to market failures that limit environmental investors' access to capital markets or poorly account for the benefits of environmental improvements. The principal question explored in the paper is whether environmental funds are too generous or too selective in co-financing environmental projects. The authors conducted a survey of proponents whose applications to Polish environmental funds were rejected following appraisal by the funds in 1994. Applicants were contacted to determine whether they had been able to close the financing "gap" by the end of 1995 that had resulted from the rejection of their application by the Fund. Survey results indicate that a large majority of respondents have secured substitute gap financing and proceeded with their planned investments. Generally, the financing gap has been closed by financing from other sources of soft financing such as other environmental funds or from own resources. Rarely, project proponents have received financing from the fund which had rejected the original application (after resubmitting a modified proposal). Only in a few instances have proposed projects been abandoned.

I. INTRODUCTION

Why public financing for the environment?

Today, countries face a tremendous challenge in moving toward more sustainable development patterns in consumption and production. The high rates of growth in material throughput observed for many decades in the 20th century cannot be sustained from a global perspective for physical, environmental, and social reasons. The challenge is daunting to both developed and developing countries. The former likely must decrease their share in the consumption of global resources while assisting the latter group in efficiently increasing their share -- a task first envisioned in *The Limits to Growth* (Meadows *et al.* 1972). The latter group of countries, which has generally devoted fewer resources to environmental protection than developed countries, must utilize their modest resources to raise the standard of living while simultaneously increasing environmental protection and sustainable development opportunities.

As convincingly demonstrated by the World Bank (1992), there exist "win-win" strategies which reconcile social and environmental needs while generating economic net benefits. Nevertheless, despite their appeal, win-win strategies may turn out to be financially unfeasible. In other words, existing markets will not support some projects which produce positive social benefits net of costs in present value terms. This typically results for any of the following three reasons:

- a potential investor is not aware of all private benefits the project can yield
- substantial benefits -- in the form of a public good -- cannot be captured by a potential investor
- a project proponent does not have access to capital markets.

Thus, the problem can be attributed to three types of market imperfections: imperfect information, externalities, imperfect capital markets, or a combination of the three.

Economists' prescriptions for remedying these problems are relatively straightforward and include the following:

- increase environmental awareness
- internalize externalities
- extend credit opportunities

We can readily observe evidence of these strategies in actual policies throughout the world. Remarkable progress has been achieved in developing environmental awareness in the business community. Various measures have been applied (including those derived from the *Polluter Pays Principle*) to bridge the gap between private and social values. Programs have been launched to improve small-scale investors' access to capital markets. Have these steps proved sufficient for overcoming the identified market imperfections?

The short answer is no, but it would be unfair to disparage the efforts to reconcile ecology with economy in many countries. It simply must be acknowledged that continued progress requires measures which go beyond educational campaigns and traditional environmental regulations. Continued progress also depends on a simultaneous response from financial institutions. In theory any level of environmental improvement or spending can be achieved by manipulating property rights or tightening environmental standards. However, for obvious reasons, these are not sufficient policy options. There can be no realistic environmental or development policy without a public funding component. Generally, this public funding component has been inadequate in developing countries.

Another misconception would be to rely on policies that are based only on public funding. Such approach can be neither effective nor efficient. The challenge is to strike a balance between policies which compel

private responses and the use of subsidized public financing to catalyze private actions. This paper does not address the question of how policy makers should blend these options in an optimal way. Instead, the paper explores the question of whether the subsidy element of government environmental policies in practice might be excessive or inadequate to stimulate environmental investments.

Channeling subsidies

Environmental subsidies can originate from several sources and at various spatial or administrative levels. Their sources can be broadly categorized as:

- national, regional, or local government budgets
- environmental (earmarked) public funds
- independent foundations
- external (foreign) assistance.

Methods for disbursing environmental subsidies can take any of the following forms:

- direct grant
- price subsidy or tax allowance (e.g. on pollution abatement equipment)
- interest rate subsidy for commercial loan
- “soft” loan
- credit guarantee
- "green" equity.

Some disbursement mechanisms are used more frequently than others by certain sources. For instance, direct grants are the most typical form of disbursing funds from general budgets. By contrast, some environmental funds in Central and Eastern Europe employ grants and/or “soft” loans that derive their name from the fact that loan terms are softer (less costly) than terms available in commercial credit markets. Nevertheless there are no *a priori* reasons to link any of the sources to any particular financing instrument.

A direct grant is perhaps the most transparent way of conveying a subsidy. Direct grants are the most common form of disbursing funds from general budgets and are also employed by many environmental funds in CEE countries. For a direct grant, both the funding source and the beneficiary clearly understand the level of financial contribution and can assess the cost-effectiveness. That is, the funding source can assess the amount of benefits obtained from a unit of the subsidy. Another advantage of grant financing is its simplicity, since repayment is not required of beneficiaries.

Grants can sometimes be linked to a commodity rather than a project (e.g. to solar panels). They make a convenient way of channeling subsidies, especially when they take the form of a tax rebate or exemption. Their disadvantage, however, is potentially weak correlation between the commodity purchased and the environmental effect sought.

An interest rate subsidy is another special case of a direct grant. The commodity it is linked to is commercial capital. It takes the form of a rebate on the interest rate prevailing on the loan market for a given category of borrowers and projects. The rebate can be granted by the creditor or -- more typically -- by some other donor. The crucial difference between an interest subsidy and a grant is that the latter can be extended independently, or even in the absence, of additional financing. On the contrary, the former assumes that the project has already met some feasibility criteria leading to a lender's willingness to invest in it. There is also a technical difference in that direct grant money is disbursed when actual costs are incurred whereas an interest rate subsidy is spread over the period of debt service.

The notion of a “soft” loan refers to a situation when the lender's loan conditions differ from those prevailing on the market. This may take the form of an interest rate subsidy or an extended grace period. Sometimes the creditor provides for a partial debt-forgiveness scheme under special circumstances. For example, debt-forgiveness might be linked to the applicants’ ability to complete the project according to the proposed schedule, or meeting technological standards of equipment installed, etc. It is usually the creditor, rather than a third party, who sets aside certain funds for debt forgiveness to stimulate good performance among borrowers.

Terms of a loan depend on the risk associated with given categories of borrowers and their projects. Quite often, small investors undertaking innovative types of investment are perceived by the creditor to be a greater credit risk on average and consequently charged higher interest rates to (statistically) compensate for the risk of non-repayment. Interest rates become prohibitive if perceived risks are high. In order to reduce rates to an affordable level, a third party must come in to shield the creditor against the perceived risk by setting aside certain funds to be drawn if a debtor does not repay the debt. Governments, banks, and other economic agents can extend credit guarantees. They may do so either because they perceive lower risk of the borrower than the creditor does, or because they view the assumption of risk as a form of financial assistance to the borrower. The assistance can be motivated by environmental considerations, or -- as in the case of some price subsidies -- by economic factors. Credit guarantees can also be arranged by organizations of borrowers. In this case, however, they serve as a means to pool the risk, and should not be viewed necessarily as a subsidy.

Equity investment in a project is called "green" if it is motivated by environmental considerations. There are many reasons why donors may decide to contribute in the form of an equity investment. Being a shareholder may provide the best means of control over the use of capital. Additionally, if the project turns out to be financially successful at some later stage, it will provide the donor with a reimbursement and possible profit either in the form of a dividend or a capital gain. However, if an equity investment were to be truly "green", the donor should withdraw the original capital rather than earn profits once the project can financially survive on its own. This is because the money could be reinvested in other environmental investments. Economists claim "green" equity to be the most market-oriented form of a subsidy. Rather than distorting the markets, it exploits their forces by simply buying property rights that channel money into desirable projects.

Effectiveness and efficiency of subsidies

The effectiveness of subsidies can be measured by the activities they trigger or catalyze. The most successful subsidy instruments are those which imply high leverage, i.e. stimulate large co-financing. The latter may come either from investors' own sources or from the capital market. The lower the subsidy, the greater the demand for co-financing and hence the volume of environmental investment. At the same time, however, a lower subsidy makes it less likely -- *ceteris paribus* -- that the project will be undertaken at all. Thus the maximum effect is achieved when subsidies are just large enough to ensure the projects are undertaken. Any larger subsidies represent a misallocation of public funds, since they would only substitute for other co-financing without increasing the effect.

There is no universal rule on how to determine an optimal amount of a subsidy or to maximize its leverage. For various types of projects, the potential leverage of subsidies will be different. The appropriate level of subsidy for projects that do not generate financial revenues (e.g., educational activities) will be close to 100%. It is obvious that only a direct grant or an equity investment can be applied in these cases. By contrast, industrial projects that are almost financially viable require a very small subsidy. Here one has a whole spectrum of subsidy instruments to choose from. For instance, if the lack of financial viability results from a substantial time lag before the project generates its first revenues, then a “soft” loan with a sufficiently long grace period will address the problem. If the project generates financial revenues, but they are lower than for purely commercial investments, then perhaps an interest rate subsidy would be most appropriate.

The effectiveness of subsidies can also be assessed in a broader, long-term perspective. Excessively generous subsidies may attenuate company incentives to spend from their own sources or to seek co-financing on a commercial basis. In addition, the availability of subsidies may impede the development of capital markets to finance environmental investments. However, a contribution from a recognized public fund may also play a catalytic role in attracting private funds to subsidized projects, and ultimately to environmental investment activities overall.

As evident from the review above, the "amount" of a subsidy is obvious in the case of a direct grant only. Subsidies implied by other forms of financing are less readily calculated. Nevertheless they can be expressed in a grant-equivalent form by using present-value techniques. In this way, it is possible to estimate the actual expenditure made by a given donor. Consequently, use of grant-equivalents also facilitates ranking of potential projects according to their benefit-to-cost ratio and would enable environmental funds to select projects providing the biggest "bang for the buck", i.e. the largest sum of benefits given resources distributed by the donor.

Cost-effectiveness criteria, useful as they are, do not answer the question of whether, in strictly economic terms (i.e. in terms of an opportunity cost), a project generates more benefits than costs. Assessing economic efficiency of a project requires that benefits be monetized and thus made commensurate with costs. The underlying concern is that given a sufficiently large scale of environmental expenditures and improvement, an economy will sooner or later reach the situation of diminishing benefits. In order to prevent that from happening, the effects of projects should be evaluated not only in physical but also in monetary terms. Projects should then be carried out only if they pass the efficiency test.

Concerns about the efficiency of any given expenditures are certainly legitimate. However, given the backlog of past neglect, particularly in economies in transition, the scale of environmental investment needed may be much larger than actual spending levels. It is thus rather unlikely that countries of Central and Eastern Europe will spend too much on the environment within the next decade or so. Under these circumstances the practical importance of cost-effectiveness criteria is higher than that of efficiency criteria. Accordingly the former remain the key reference point for evaluating the adequacy of the allocation of environmental spending.

Outline of the paper

In international conferences on the role of environmental funds, many of the issues raised above are vigorously debated [OECD 1995]. In this paper we will narrow our focus to the following question: are environmental funds providing financing that is too generous? In particular, when funds provide grants, is the level of grant co-financing greater than would be necessary for project proponents to undertake investments? Similarly, how soft do loan terms need to be to attract applicants? These questions have important policy and resource allocation implications. Given the limited availability of subsidized funding, could funds better leverage their resources and fund more projects by reducing grant co-financing levels or, in the case of soft loans, the grant equivalent of the subsidies? Are environmental funds presenting a barrier to the development or wider use of capital markets to finance environmental investments?

To date, it has been difficult to support these discussions with empirical analysis. The purpose of this paper is to present key results of a survey undertaken in Poland to learn more about the actions project proponents take if they are unsuccessful in securing subsidized financing from environmental funds. In particular, are investments abandoned because project proponents are unable to secure substitute "gap" financing or do project proponents secure substitute financing at less favorable terms and still proceed with planned investments? Section II of this paper describes the role of environmental funds in Poland. In Section III, we examine the project proponent's motivation to undertake environmental investments

and strategy for securing financing. Section IV describes the survey design and research questions while the last section presents survey results and tentative conclusions.

II. THE ROLE OF THE FUNDS: THE EXPERIENCE IN POLAND

The Environmental Action Programme for Central and Eastern Europe (EAP), endorsed by countries during the Environment for Europe Conference in Lucerne in 1993, presents a 3-legged approach to achieving environmental improvements. In developing strategies to improve the environment, countries should devote attention to:

- policy
- institutional development and strengthening, and
- investment.

Too little attention to one or more of these tasks may diminish the value or effectiveness of the others. For example, adoption of flexible economic instruments to promote cost-effective pollution reductions cannot work if there are significant impediments to investment in pollution control.

Beginning with the first post-Communist government in 1989-1990, Poland developed a National Environmental Policy which acknowledges and promotes all three legs of EAP. A number of institutions and financial mechanisms have been created to implement the national policy. Some of these mechanisms, such as environmental fees, were inherited from the past while others were newly introduced (such as environmental funds). The mix of policy and financial instruments used in Poland is similar to those utilized in many CEE countries. A more extensive review of policy and financial instruments is provided by Zylicz [1994] for Poland and Francis [1994] and Klarer [1994] for other economies in transition. The goal of this section is to examine environmental investment in Poland to illustrate typical problems encountered in financing environmental recovery in economies in transition and to provide an overview of the environmental funds which are the focus of analysis later in the paper.

While each country may require a different scale of clean-up and abatement activities, expenditure on the environment of 1 to 2% of GDP is generally considered a useful benchmark based on the experience of OECD countries. According to official statistics, Poland has achieved and sustained a level (1.1% since 1991) comparable to that of OECD countries. However, some caveats must be provided for the interpretation of this percentage.

The amount of environmental spending in Poland is difficult to assess statistically for two reasons. First, only end-of-pipe investments can be classified unambiguously as "environmental" expenditures. At the same time, such projects are often less environmentally sound (and less economically viable) than projects utilizing technological improvements which reduce emissions or energy consumption. However, these environmentally- and economically-motivated investments are not treated as environmental costs under standard accounting rules used in Poland. Second, in many countries, water supply projects have been grouped together with environmental investments in national statistics. Yet building dams and dredging canals is more a part of the problem than its solution. Therefore expenditures on such projects should not be confused with those devoted to protection activities.

In order to visualize the extent of such additional expenditures related to environmental protection *sensu stricto* it can be observed that in Poland water supply projects represent an additional (to the 1.1% cited above) 0.5% of GDP. On the other hand, environmentally / economically- motivated projects other than end-of-pipe investments attracted 17% more expenditures than traditional abatement in a sample of large industrial polluters in 1992 [Broniewicz *et al.* 1994]. This may not be quite typical for other economic sectors such as the household sector where the need for end-of-pipe measures is more pervasive than in industry. Nevertheless, these data suggest that in Poland the share of GDP for environment and water

related projects is well above 2%. However, the discussion in this section mainly is confined to environmental investment *sensu stricto* which, in 1994, exceeded 1.1 billion US dollars (more than twice pre-1990 levels) in Poland.

A recent assessment by the Ministry of Environmental Protection, Natural Resources and Forestry [Ochrona 1996] indicates that in 1995, 32% of "official" environmental investment expenditures were financed either from firms' own sources or from commercial credit. Municipal polluters accounted for an additional 18% of expenditures out of their budgets or with money borrowed on commercial terms. These two categories correspond to one-half of total expenditures. The remaining half came from heavily subsidized sources. The National Fund for Environmental Protection and Water Management (the National Fund) contributed 20% of the total investment. The 49 regional environmental funds provided an additional 15%. The National and regional funds disburse money mainly in the form of "soft" loans and direct grants to applicants. Municipal environmental funds, of which there are 2,466, added another 5% in the form of direct grants. The state budget contributed 5% (direct grants only) and foreign assistance accounted for the remaining 5% of expenditures (in grants and loans).

This overall picture is but a very rough approximation of total environmental financing flows. On the one hand, these expenditure estimates include only investments on end-of-pipe projects which are more subsidized, suggesting that the overall role of public funds for environmental investments viewed in a broad way is smaller than 40%. On the other hand, since environmental fees (which provide most of the revenue for public funds) are tax deductible, there is some shifting of the tax burden to other taxpayers, increasing the public's contribution to environmental expenditures. Also, the percentage breakdown quoted above does not include indirect subsidies in the form of modest tax exemptions -- not recorded statistically -- for limited categories of projects. Thus, the actual contribution of the state budget is somewhat larger than reported in the official statistics for direct grants. Nevertheless, on the whole, this additional public contribution cannot outweigh the additional private funding of investments other than end-of-pipe.

Environmental funds play a crucial role in financing investment expenditures [Anderson and Zylicz 1995]. The National Fund contributes not only by providing grants and loans, but also with interest rate subsidies and equity. In 1990, the Bank of Environmental Protection, Inc. was established as a joint stock company owned by the National Fund and several industrial firms. Pursuant to a long-term contract the Bank has signed with the National Fund, the latter regularly allocates some of its resources to subsidize interest rates charged by the Bank for loans. The leverage obtained in this way is quite substantial.

Credit guarantees attract little resources for the time being. A relatively small part of foreign assistance comes in the form of guarantees -- mainly to support exports of environmental technology or services from donor countries. It is likely that the role of this instrument will grow in economies in transition over the next couple of years [Laurson *et al.* 1995].

Most foreign environmental assistance takes the form of direct grants. In some cases, however, the donors request that the money be repaid to a Polish environmental fund (usually to the National Fund), enabling the funds to revolve. A share of external assistance -- originating from the debt-for-environment swaps authorized by the Paris Club in 1991 -- is channeled through the Polish EcoFund, a foundation established for that purpose by the Polish Minister of Finance in 1992. The EcoFund gives direct grants only. Another type of external assistance is through equity. The most prominent example of externally funded equity financing is provided by NEFCO (Nordic Environmental Finance Corporation).

This rich variety of available environmental financing instruments -- many of them highly subsidized -- available in Poland raises the question of their effectiveness and efficiency. Several funding institutions have developed procedures to assess cost-effectiveness of their spending. For instance, certain categories of EcoFund's projects are subject to priority ranking methodologies that utilize economic criteria. Here the adoption of a specific spending policy is facilitated by the fact that subsidies are in a direct-grant

form only and thus the monetary cost is easy to measure. Other environmental funds (above the municipality level) apply a variety of instruments which makes the ranking of projects difficult even when grouped into narrow categories. Some funds, however, and most notably the Cracow Regional Fund [Peszko 1994], adopted methodologies to determine subsidy equivalents of various financing schemes for comparative purposes. Despite efforts to improve allocative efficiency, assessing and achieving cost-effectiveness remains a major challenge.

III. A FRAMEWORK FOR ANALYZING ENVIRONMENTAL COMPLIANCE

To analyze the firm's motivation to undertake environmental investments or make other process changes that enable the firm to meet its regulatory requirements, it is useful to examine the net benefits of compliance *vis a vis* non-compliance. In developed countries, such a framework has helped environmental enforcement officials to understand the barriers to achieving high compliance rates and to identify policies to either reduce the costs of compliance and/or increase the costs of non-compliance.

The costs of compliance include capital expenditures and associated operating and maintenance costs to achieve pollution reduction. Environmental investments may also have an indirect effect on production levels or costs. In many CEE countries including Poland, reduction in pollution levels will lower the firm's environmental fee payments to regulators and these savings partially offset the costs of compliance.

The costs of non-compliance depend on the types of sanctions that are imposed by regulators for violations of regulations. The expected cost of sanctions depends on the probabilities of detection and conviction as well as the level of the sanction that is imposed. There may be "benefits" to the firm if it pursues a non-compliance strategy. In the period of transition, many enterprises are struggling to survive. Thus, since some (but not all) resources for environmental investments could instead be devoted for investments that enhance the firm's chances of survival, there is an opportunity cost to compliance that can be avoided, thus viewed as a "benefit" of a non-compliance strategy.

One role of environmental funds is to lower firms' costs of compliance. In the absence of subsidized funds, fewer environmental investments would, *ceteris paribus*, be undertaken. As noted earlier, Poland's Funds contribute 40% of the capital resources for environmental investments.

The aggregate rate of compliance can also be increased by making it more costly to violate regulations. Typically, the non-compliance costs can be increased by increasing the severity of penalties or utilizing sanctions such as facility closures. In addition, since the actual costs of non-compliance are probabilistic, enforcement agencies can increase the costs through more effective detection and conviction of violators. In Poland, fines are up to ten times the rate for environmental fees. In addition, fines, unlike "regular" fees, are not treated as a pre-tax deduction, resulting in even greater incentives to avoid fines. However, Poland provides violators with the option to defer fine payments for up to five years. If, at the end of the negotiated deferral period, the firm has eliminated the violation, the accrued fines may either be (a) waived if the investments costs equal or exceed the value of deferred fines; or (b) reduced by the amount of the investment if it is less than accrued deferred fines. Despite visible progress in Polish enforcement after 1989, environmentally-motivated facility closures are still uncommon indicating that enforcement is not pursued to the full extent. There are less than 100 such cases every year and they include only the very worst polluters. In addition, many of these decisions may be reversed on appeal to the Minister of Environmental Protection, Natural Resources and Forestry. As a result, a typical Polish firm may attach a very low probability to being forced to discontinue its operations as a result of non-compliance. Whether firms actually carry out such an analysis of the trade-offs between compliance and non-compliance before undertaking investments has been widely discussed in both the economic and related social sciences literature. There are compelling arguments that firms are motivated to comply with standards by non-economic factors such as their public image. We have assumed that most Polish firms are trying to survive the transition period financially rather than use the environment and public image as

a spring-board for future expansion. As a result, they view direct compliance benefits narrowly as simply the potential to reduce payments of fees and fines. In Poland, non-compliance is more a manifestation of a firm's struggle for economic survival or inability to raise the necessary capital than some conscious calculation of the trade-offs between compliance and non-compliance.

IV. SURVEY DESIGN

To investigate how a firm responds to the rejection of its application for subsidized financing, a survey of applications rejected by Polish environmental funds was undertaken as a joint effort of the Harvard Institute for International Development and the Warsaw Ecological Economics Center. We have assumed that applicants intend to make the proposed investment *if they secure all of their required financing*. Once the application is rejected, the firm must reassess its investment decision. We may pose some questions about the likely responses of firms to the rejection of their application:

1. With the loss of subsidized financing and the corresponding increase in the costs of compliance (assuming substitute financing is available though not on equally favorable terms), is the firm still motivated to proceed with the investment?
2. Are the costs of non-compliance low enough that the firm can afford to postpone its investment for an indefinite period, either to resubmit its application (assuming the reason for rejection can be addressed in the next application) or identify/pursue alternative sources of financing?
3. Does the firm have no recourse following rejection but to abandon the project because there are no options for financing the "gap" resulting from the rejection of the application?
4. If a firm is already in a "deferred fine" status, is it more likely to undertake investment at a higher cost to the firm to avoid eventual payment of deferred fines?
5. If the amount of financing requested represents a relatively large share of total project costs, is the applicant more likely to reduce the scale and costs of the project to an affordable level rather than pursue alternative gap financing?

Thus, the aim of the survey was to identify applicants of rejected projects and determine what subsequent steps they had taken to secure gap financing. To the extent possible, using a limited number of survey responses, we have attempted to explore some of these questions. We decided to focus the survey on applications rejected in 1994 to see what actions had been taken in 1995. The decision to use observations for an entire year was predicated on the perceived need to eliminate the potential impacts of "seasonal fluctuations" in project cycles characteristic of environmental funds. In addition, a one-year period for the follow-up analyses seems to be sufficiently long to enable project promoters to revise applications, modify the original project or identify alternative gap financing.

The Polish EcoFund, the National Fund for Environmental Protection and Water Management, and the Warsaw Regional Environmental Fund were contacted to determine their willingness to share their lists of rejected applications. Both the EcoFund and the National Fund agreed to cooperate and provided a list of rejected applications (including contact information for the applicant) in December, 1995.

Once the lists of "rejected" applications were received, the first step was to exclude applications which did not meet our minimum criteria as projects. Each year, the funds receive large numbers of inquiries about the availability of funding, only a portion of which can be viewed as "projects." The National Fund receives hundreds of "unsuccessful" inquiries each year. Most of these rejected applications are characterized by vague project and technology descriptions, fail to identify environmental impacts, or provide insufficient information on project costs or even the level of financing requested from the fund. These "non-projects" are counted as rejected applications by the National Fund and were included in the

list provided to us by the Fund (see Table 1). However, the authors eliminated the "non-projects" for purposes of the study. The list of rejected applications provided by the EcoFund was much smaller than for the National Fund. EcoFund is a smaller fund than the National Fund by an order of magnitude and accepts applications for fewer types of environmental projects (transboundary pollution, Baltic Sea protection, climate, and biodiversity protection). In addition, EcoFund utilizes a pre-application process that serves as an effective screen of "non-projects" and projects which do not meet the EcoFund's eligibility requirements. As a result, only 18 "non-projects" were eliminated from the EcoFund list of rejected applications (Table 2).

Table 1: Summary of 1994 applications to the National Fund and EcoFund

Fund	Number of Applications Received	Number of Applications Accepted for Funding	Number of Applications Rejected	Number of Rejected Applications Used in Survey
National Fund	1596	830	766	174
EcoFund	150	35	115	84

After the list of rejected projects was finalized to eliminate non-project applications, a written questionnaire was sent out. Project applicants were not asked to complete the written survey but simply to review the survey questions. Once applicants had an opportunity to review the questionnaire, they were contacted by phone and asked to answer the survey questions verbally. Surveys were sent out to 251 project proponents whose applications had been rejected by the National Fund and to 97 applicants of projects rejected by the EcoFund (Table 2). Among this initial group of enterprises whose applications had been rejected by the National Fund and EcoFund, 174 (69%) and 84 (87%), respectively participated in the survey.

Table 2: Development of the rejected application survey samples

Fund	Number of Rejected Applications	Number of "non-projects" among Rejected Applications	Number of Applicants Surveyed	Number of Respondents to the Survey
National Fund	766	515	251	174
EcoFund	115	18	97	84

The questionnaire includes thirteen questions (see the appendix). The first seven questions pertain to the rejected application. The first two questions asked respondents whether they received written notification of the rejection and the reasons given, if any, for the rejection. The next three questions concerned the amount of financing requested from the Fund, the percentage of total project cost this source of financing represented, and the type of financing requested (grant, equity, soft loan, etc.). The sixth question asked about the applicant's environmental compliance status and whether, at the time the application was submitted, they faced a deadline for deferred penalties (a provision in Polish environmental policy which reduces or eliminates penalties if the non-compliance problem is corrected within 5 years). The seventh question concerned the preparation of the application. Questions 8 through 12 pertained to the status of the project at the end of 1995. In particular, respondents were asked if the project had been abandoned (Question 8), postponed (Question 9), or financed using other sources (Question 10). In Question 11, applicants were asked if they had revised and resubmitted their application and whether they had been successful. In Question 12, they were asked if the project was modified in a way that would make it more affordable or attractive to investors or funds. The last question provided respondents with an opportunity to offer additional comments.

V. SURVEY RESULTS AND CONCLUSIONS

Reasons for rejection

The first three survey questions focused on communications between the Funds and applicants of rejected projects. Respondents were asked if they received written notification that their applications had been rejected and, if so, an explanation for the rejection. In Table 3, responses to the first two questions are provided. Sixty-five percent of all survey respondents indicated they (or their enterprise) received written notification. A slightly higher percentage of respondents in the EcoFund survey received notification than in the National Fund survey (70% to 63%). The interpretation of these results for the two funds is quite different, however. The EcoFund, according to its procedures, is required to provide written notification to all applicants whose proposals have been rejected. Thus, 30% of respondents to the EcoFund survey were unaware of this notification. The National Fund does not have a similar requirement, yet often provides written notification. Of those respondents who were aware of written notification, 86% indicated that the notification also included an explanation of the reason(s) for rejection.

Table 3: Written Notifications of Rejected Applications

		Number of Responses		
Question		National Fund	EcoFund	Total
<i>Question 1: "Did you receive written notification of your rejection?"</i>	Yes	110	59	169
	No	64	25	99
<i>Question 2: "Did you receive written explanation of your rejection?"</i>	Yes	92	54	146
	No	82	30	112

Respondents were asked also to state as many as two reasons provided by the funds (in writing) for the rejection of their applications. One hundred forty-six respondents described the reasons given by the funds for rejection. Most respondents provided a single reason, although twenty-two provided a second reason. This was an open-ended question and respondents provided eighteen different reasons for rejection. To facilitate discussion, the nineteen reasons have been grouped into six general responses (Table 4).

Table 4: Reasons for Rejection

Reason for Rejection	National Fund	EcoFund	Total
Eligibility requirements	29	8	37
Incomplete documentation	24	3	27
Doesn't meet Fund requirements	10	17	27
Types/sizes of benefits	11	32	43
Concern about applicant's financing	1	1	2
Fund's resources limited	26	6	32

The reason for rejection provided most often was that the type of environmental benefits or the magnitude of benefits (or benefits in relation to costs) did not merit funding. In the case of EcoFund, the eligible environmental project categories are narrowly defined. Thus, an explanation given for rejection might be that biodiversity resources protected were not of international significance, or alternatively, a waste water project might result in a limited contribution to improvements in water quality in the Baltic Sea. In other cases, rejected projects that met the eligibility requirement may simply have yielded less benefits than other projects considered for funding.

Many respondents, particularly in the National Fund survey, were given reasons related to eligibility requirements, incomplete documentation and failure to meet the Fund's requirements. To be eligible for

funding from the National Fund, a project must result in environmental improvements in one of the Fund's priority areas. Eighteen respondents in the National Fund survey received this explanation (that it was not in a priority area) for rejection. Other types of ineligibility included applications for financing where the project had already been completed, requests to fund ineligible activities such as pre-feasibility studies, and cases where the equipment would be procured from a country not participating in the EcoFund "debt-for-environment swap." A failure to meet a Fund's requirements could cover a range of application deficiencies including eligibility as well as failure to receive a high enough score to receive financing (EcoFund). In two instances, the Funds raised questions about the applicant's co-financing capabilities. A substantial number of applicants were told that the Fund's resources were limited or exhausted. In the EcoFund survey, this may simply imply that the project did not receive a high enough score to receive funding. In the case of rejected applications to the National Fund, where only limited resources are made available for grants, applicants may have been advised to resubmit and request "soft" loans instead of grants.

Financial aspects of applications

Respondents were asked to indicate the total costs of their proposed projects and the share of project costs requested from the Fund in the application. Although we were not able to obtain the same information on most individual project characteristics for accepted projects as for rejected projects in the survey, aggregate information on funded projects was available to facilitate comparisons between the amount of funding requested for accepted and rejected projects and also the relationship between the amount requested and total project costs.

For the National Fund, there are very striking differences between rejected and accepted applications in terms of average total project costs and the share of project costs requested from the National Fund (Table 5). All rejected applications (i.e. those including "non-projects") involved total project costs that were, on average, 80% larger than accepted applications or rejected applications in the survey. However, the share of total project costs requested in rejected applications (18%) is lower than for accepted projects (23%) and substantially lower than rejected applications in the survey (41%). If the rejected applications used in the survey were separated from the remainder of rejected applications, differences between this latter group and accepted applications would be even larger.

The financing characteristics (high costs, low share requested) of rejected applications -- represented by a large number of poorly developed "non-projects" -- conforms to a pattern of behavior that was typical during the communist period. Enterprises expected that more modest requests (in terms of share of financing) were more likely to receive funding. By overstating the total costs of projects, these seemingly modest requests could defray a substantial portion of actual costs. Under the former administrative allocation regime, enterprises did not expect to receive all of the financing needed in a given year, were not motivated to fully elaborate projects, or held accountable (or rewarded) for developing projects to the appropriate scale.

Table 5: Summary of financial characteristics of applications submitted to the National Fund in 1994

	All applications	Rejected		Accepted
		All	In survey	
Number of projects analyzed	1596	766	160	830
Average project cost (billion PLZ) ^a	48.7	62.4 ^b	36.8	36.1 ^b
Average amount requested (billion PLZ)	9.7	11.1	14.9	8.3
Average amount requested (% of cost)	20	18 ^b	41	23 ^b

^a In 1994, 1 billion Polish Zloty (PLZ) was equivalent to \$44,052.86

^b Authors' estimate based on extrapolating data for 723 accepted projects

The other interesting trend in Table 5 is the share of project costs requested from the Fund in rejected applications in the National Fund survey (41%), nearly double the share requested in successful applications. This trend might be explained in a couple of ways. First, with scarce resources, funds would prefer to leverage their resources by supporting projects that can cover a larger portion of project costs from other sources. We cannot directly compare net benefits or even cost-effectiveness of rejected and accepted projects, and such criteria are not explicitly used by the National Fund, but clearly the National Fund would be able to support substantially fewer projects if, on average, it funded larger shares of projects. Second, the National Fund allocates substantially more resources to “soft” loans than to grants, and typically, the average National Fund loan is larger than the average grant. Seventy-nine percent of the rejected applications in the survey were seeking grants from the National Fund (Table 6).

Table 6: Type of Subsidized Financing Requested

Type of Financing Requested	National Fund	EcoFund	Total
Grants	138	81	219
“Soft” loans	32	3	35
Grants and soft loans	3	-	3
Equity and soft loans	1	-	1

Of the 84 unsuccessful applicants to the EcoFund who responded to the questionnaire, 77 provided information on project costs and share of financing requested (Table 7). Based on these data, projects rejected by the EcoFund had substantially higher average project costs than projects funded by EcoFund or those accepted or rejected by the National Fund. This high average project cost is influenced by large water protection projects submitted to (and rejected by) EcoFund (Table 8). If these water projects are excluded, the average project cost among EcoFund rejected applications would fall to 39.8 billion PLZ. Similarly, the average project costs for accepted EcoFund applications (62.6 billion PLZ) is nearly twice the average project costs for National Fund applications, due in large part to the two large air protection projects that were funded in 1994 (Table 9).

Table 7: Comparison of rejected^a and accepted projects submitted to the Funds

	Rejected		Accepted	
	National Fund	EcoFund	National Fund	EcoFund
Number of projects analyzed	160	77	830	35
Average project cost (billion PLZ)	36.8	89.4	36.1	62.6
Average amount requested (billion PLZ)	14.9	18.7	8.3	14.6
Average amount requested (% of cost)	41	21	23	23

^a Includes only rejected applications in the survey which provided project cost data.

Table 8: EcoFund - rejected survey applications in 1994 (billion PLZ)

Project Category	Number	Total Cost of Projects	Amount to be financed by Fund	Financing share
Air protection	4	95.1	34.9	37%
Baltic Sea	47 ^a	5571.4	1082.1	19%
Climate protection	25 ^b	1077.0	294.3	27%
Biodiversity	2	1.1	1.0	97%
Other	6	139.1	28.4	20%
Total	84 ^c	6883.6	1440.7	21%

^a Cost information was available for 44 projects only

^b Cost information was available for 21 projects only

^c Cost information was available for 77 projects only

Table 9: EcoFund - applications accepted in 1994 (billion PLZ)

Project Category	Number	Total Cost ^a	Amount to be financed	Financing share ^b
Air protection	2	854.1	316.0	37%
Baltic Sea	4	565.8	67.9	12%
Climate protection	12	623.1	99.7	16%
Biodiversity	17	148.4	28.2	19%
Other	-	-	-	-
Total	35	2191.4	511.8	23%

^a Authors' estimate based on average shares for projects financed in 1994

^b Average shares for projects financed in 1994

Comparisons between average project costs for the National Fund and EcoFund are somewhat misleading because the National Fund supports a larger range of activities than EcoFund. EcoFund supports water protection (especially as it affects the Baltic Sea), air protection (transboundary pollution and mitigation of climate change), and biodiversity. The National Fund supports projects in these categories as well as waste disposal and "other" types including monitoring, environmental accidents, education, research, and consulting (Tables A1 - A4 in the appendix). Table 10 presents cost and financing data for the two funds where National Fund averages are based only on projects in the same general categories as EcoFund projects (the six "other" projects rejected by EcoFund - see Table 8 above - are excluded from Table 10 to make the averages more commensurable). The average project cost of National Fund applications (both rejected and accepted) increased after separating out waste disposal and "other" projects. Despite the large increase in average costs, the share of project costs requested experienced only a slight drop.

The main conclusion from these tables is that, rather surprisingly and despite profound institutional differences in the funds, average project costs and the level of assistance requested are quite similar. Differences in the funds' overall expenditures are much smaller than differences for specific project categories such as air and water protection.

Table 10: Comparison of all rejected and accepted projects submitted to the Funds (adjusted for EcoFund structure)^a

	Rejected		Accepted	
	National Fund	EcoFund	National Fund	EcoFund
Number of projects analyzed	126	71	514	35
Average project cost (billion PLZ)	42.1	95.0	54.3	62.6
Average amount requested (billion PLZ)	16.7	19.9	11.9	14.6
Average amount requested (% of cost)	40	20	22	23

^a Data for both Funds adjusted to allow direct comparisons between projects of the type funded by EcoFund (climate/air protection, Baltic Sea/water protection, and biodiversity)

In Table 11, additional information on financing requests is presented for survey respondents. In the upper half of Table 11, the number of applicants requesting different amounts of financing is illustrated. For National Fund respondents, requests were reasonably evenly distributed among the various

categories. There were very few small requests to EcoFund and a large number of requests in the 10 to 100 billion PLZ range.

Shares of project costs requested were divided into four categories representing 25 percentage point intervals. The resulting distribution of applications into these categories (bottom half of Table 11) reflects, in part, co-financing rules of the National Fund and EcoFund. The National Fund does not set mandatory co-financing requirements for grants and applicants may request up to 100% of project costs. For soft loans, the maximum shares of project costs available to enterprises and municipalities are 50% and 70%, respectively. Thus, although 53% of shares fall within the 26-50% range, shares in each of the other three ranges exceed 13%. EcoFund generally limits their co-financing share to 10% to 30% of project costs, although EcoFund will finance up to 50% (for certain projects proposed by local governments) and up to 80% for biodiversity projects carried out by public entities, foundations or non-governmental organizations. Not surprisingly, 88% of applications to EcoFund involved requests of less than 50% of project costs.

Table 11: Financing Requested from Funds

Amount Requested (million PLZ)	National Fund	EcoFund	Total
10- 500	28	5	33
501 - 999	18	1	19
1,000 - 2,000	39	12	51
2,001 - 5,000	27	15	42
5,001 - 9,999	13	14	27
10,000 - 100,000	32	27	59
100,001 or more	3	1	4
Percentage of Project Costs Requested	National Fund	EcoFund	Total
up 25%	26	33	59
26 to 50%	86	27	113
51 to 75%	22	5	27
76% or more	27	3	30

Compliance with current standards

In the opening section of the paper, alternative justifications for the existence of funds were offered. One motivation for subsidized funding would be to assist facilities in securing financing to correct permit violations. However, the data in Table 12 suggest that applicants of rejected projects, at least, are in compliance with environmental requirements at the time they submitted their applications. Overall, 88% of rejected applicants in both surveys were in compliance with their current standards, with a larger percentage of National Fund respondents (92%) in compliance than for EcoFund respondents (78%). Without information on compliance rates for accepted projects, we can only speculate on some of the explanations for the high compliance rates among rejected applications.

First, priority in project appraisal might be given to applications which are out of compliance since these projects yield greater environmental benefits. Thus, it might be expected that projects which comply with environmental requirements are perceived as less urgent. In addition, assuming more facilities with accepted projects are in fact out of compliance, it could be that these investors put more effort into preparation of a good proposal when they face non-compliance penalties and are then rewarded with higher rankings. In fact, neither fund gives explicit weight to compliance status in the project appraisal

process. Second, many of those applicants who currently comply with existing standards are making investments in advance of new, stricter standards. For example, the new air emission standards for large combustion plants take effect January 1, 1998. Third, not all proposed projects involve “end-of-pipe” investments. Some applicants may develop proposals that are designed to utilize energy and other resources more efficiently or to reduce or modify waste streams. Fourth, nature protection and biodiversity project proponents would not likely hold pollution permits.

Of the thirty-one applicants which did not comply with current standards at the time they submitted their applications, 58% have requested deferral of fines and faced specific deadlines for attaining compliance status to avoid paying the deferred fines. Eleven applicants who deferred penalties faced deadlines for compliance in 1995 or 1996, limiting the amount of time they would have to secure financing for their proposals. The survey indicated that six of these applicants continued the project even after rejection for Fund financing. Most of them (4) secured “gap” financing from mixed (own and external) sources, while one relied on own sources only and the remaining one managed to attract an alternative external financier. Two projects were postponed by two years (expecting to close the gap from own or mixed sources). Two proposals were modified by improving documentation. Only one project was abandoned, and its investor was not explicit as to the consequences of that step. Of the seven applicants who faced deadlines extending further into the future, six proceeded with the investment and only one resubmitted a modified proposal

Table 12: Environmental Compliance at Time of Submission for Rejected Applicants

Question		National Fund	EcoFund	Total
<i>Question 6a: “Were you in compliance with permitting requirements?”</i>	Yes	160	66	226
	No	13	18	31
<i>Question 6b: “If not, were penalties for non-compliance deferred?”</i>	Yes	4	14	18
	No	9	4	13
<i>Question 6c: “If yes to 6b, year of deadline?”</i>				
1995		2	4	6
1996		-	5	5
1997		-	5	5
Not specified		2	-	2

These results suggest that the deferral of fines may indeed act as an incentive for firms making extra efforts to proceed with investment. Only one applicant in this group abandoned the project completely.

Applicants’ actions following rejection

After the applicant’s project is rejected for financing by a Fund, a substantial financing gap must be closed to proceed with the investment as proposed. The applicant faces a number of decisions. The project can be abandoned if the task of finding substitute financing is not expected to produce results. For example, the applicant may have learned that the project is not suitable for subsidized financing from the Fund (and other funds) and that commercial financing is unaffordable. Alternatively, the investor may not be under pressure to implement the investment because the enterprise already meets environmental requirements. During the project appraisal process, the applicant may have received feedback from the Fund that its experts do not believe the proposed technology is appropriate or cost-effective.

If the project is not abandoned, the investor may pursue one of several strategies. First, the investor must decide whether it is necessary to revise the project. For example, an alternative technology might be considered or the project might be scaled down to reduce costs. Also, the project might be divided into smaller investments spread out over a longer time horizon. The applicant may simply revise or update the application without changing the scope of the project. The revised application could then be

resubmitted to the same Fund or submitted to another funding source. In terms of methods for securing money to replace the “gap” resulting from the rejection, as mentioned above, the applicant can resubmit to the same funding source, secure financing from other sources, or postpone the investment, typically, until the applicant’s own resources are adequate to cover the gap.

In Table 13, the status of the rejected applications at the end of 1995 is summarized. Only a small number of all rejected projects (11%) were abandoned by the end of 1995. In percentage terms, more projects submitted to the EcoFund (14.6%) were abandoned than for the National Fund respondents (8.8%). Twenty-three percent of respondents indicated that they had postponed making the investment to secure financing (either from sources other than the Fund or by resubmitting the application). In both surveys, more than 50% of respondents reported that they had closed the financing “gap” by the end of 1995, using a combination of approaches. Overall, the percentage of rejected applications that were financed by the end of 1995 was similar for the two surveys. However, a considerable number of respondents (16) in the National Fund survey had resubmitted their applications to the National Fund and received financing support. In several cases, these applicants had originally requested grant financing from the National Fund but resubmitted the application requesting either “soft” loans or a combination of “soft” loans and grants. More detailed analyses of these results are discussed in the sections below.

Table 13: Status of Rejected Applications

Status of Rejected Projects (end of 1995)	National Fund	EcoFund	Both Funds
Abandoned	16	12	28
Postponed	47	12	59
Postponed/resubmitted/no answer	3	-	3
Resubmitted/no answer	1	-	1
“Gap” financing arranged (all methods)			
• sources other than the Fund	85	45	130
• resubmitted application only	6	-	6
• resubmitted application + other	10	1	11
• resubmitted application rejected then sources other than the Fund	5	-	5
• resubmitted application/no answer then sources other than the Fund	9	4	13

Abandoned projects

Respondents who abandoned their projects were asked to provide an explanation for this decision. Over half of this group (19) indicated that the technology they currently use was adequate and the new project would not be pursued without financing from the Fund. Another two respondents reported that they simply terminated the project. In four cases, respondents provided interesting answers to this question. One respondent abandoned the project after receiving the EcoFund’s opinion that the proposed project would actually increase water pollution. A second respondent abandoned their project because they were unable to procure equipment (wind energy production) in Poland or one of the countries participating in EcoFund (U.S., France, and Switzerland). Two applicants to the EcoFund planned to develop new projects, in one case, using an alternative waste water treatment technology.

In four cases where applicants had decided to abandon projects, their enterprises were out of compliance with existing environmental regulations. Three of these respondents stated they were planning to pay fines, while the fourth respondent had requested a deferment in fines until 1997 and planned to prepare a new project. In comparing abandoned projects to other rejected applications, there are significant differences in the amount of financing requested and the share of project costs requested. For the abandoned projects submitted to the National Fund and EcoFund, the average amount requested was 1.25 billion PLZ (compared to the average of 14.9) and 7.93 billion PLZ (compared to the average of 18.7), respectively. However, the share of total project costs was much higher among abandoned applications than among all rejected applications to the National Fund (50 % compared to 41 %) and EcoFund (52 %

compared to 21%). It is interesting to note that these abandoned projects would have presumably been undertaken if they had received financing and required substantially less funding to close the financing gap than for rejected applications, generally. However, project proponents of these abandoned projects had to close a gap that represented about half of project costs. Since the large majority of these applicants were in compliance with environmental regulations, we can speculate that the project proponent would only justify the project if a substantial proportion of costs could be covered through grants. Of the 28 abandoned projects, only four applicants (to the National Fund) had requested soft loans. In all other cases, applicants had requested grant financing.

Postponed projects

As noted above in Table 13, 59 respondents indicated they had postponed their projects. Respondents were asked to indicate how long the project would be postponed and what sources of finance they were considering to close the financing “gap.” In most cases, respondents did not answer the question concerning the duration of postponement. We believe that many respondents planned to undertake their projects as soon as gap financing could be arranged. Given that some sources of gap financing could not be accessed with certainty (e.g., application to another fund still pending), it would be difficult to answer this question about timing.

Respondents were asked what sources of finance were under consideration to close the financing gap. These responses are summarized in Table 14. Several potential sources of finance were mentioned including own resources, regional environmental funds, the National Fund, budgetary grants, and loans through the Bank of Environmental Protection (BOS). Many respondents simply indicated that “other resources” would be the source of financing. All resources other than own resources have been included in the category “external resources” in Table 14.

Table 14: Planned Solution for Financing Postponed Projects

Planned solution to financing “gap”	National Fund	EcoFund	Total
Own resources	4	2	6
External resources	24	8	32
Own and external resources	6	2	8

Resubmitted applications

Thirty-nine respondents in both surveys reported they had resubmitted their application to the same fund for reconsideration. Of these, the majority (34) were resubmitted to the National Fund. Of these 39 applications resubmitted to the Funds, 17 received funding and 5 had been rejected a second time. Seventeen respondents had not received an answer from the Fund concerning the second submission. However, 13 of the 17 proceeded with the investment using other resources even though no answer had been received from the Fund.

About 40% of respondents who resubmitted applications indicated they made no changes to the application (or provided no new information to interviewers). However, 60% of the resubmitted applications were modified. In 8 cases, the documentation submitted with the application was completed. Some applicants to the National Fund requested loans (2 cases) or a combination of loans and grants (2 cases) after their grant applications were rejected the first time. Six respondents stated they changed the technology before resubmitting. Four respondents reduced their project’s scale or costs while one respondent reported increasing project costs. Miscellaneous changes to applications included the following: changes in project location, replacement of consultants who prepared the first application, better description of project’s environmental benefits, addition of educational component, and reduction in the co-financing request. Changes to resubmitted applications are summarized in Table 15.

Table 15: Changes to Resubmitted Proposals

<i>Question 11b: What changes, if any, were made to the proposal before resubmitting?"</i>	National Fund	EcoFund	Total
No changes or no new information	12	3	15
Changed scale of project	2	-	2
Other technologies	4	-	4
Completed documentation and miscellaneous changes	10	1	11
Changed siting of project	-	1	1
Changed co-financing	-	1	1
Requested loan or loan/grant instead of grant	3	-	3

Closing the financing "gap"

As noted earlier, 152 respondents reported they had closed the financing gap by the end of 1995. In sixteen cases, respondents were successful in receiving funding from the Fund which had previously rejected their applications. However, for ten of these cases, additional sources were required in addition to financing from the Fund to proceed with the project.

In the questionnaire, respondents who arranged financing indicated the source(s) of financing that were used to close the financing "gap" (Table 16). Almost 75% of these respondents used their own resources to close the gap or combined own resources with other sources. By contrast, own resources were identified as a proposed source of gap financing for only 31% of respondents who postponed their projects (Table 14). Although these are two separate groups of respondents, it does suggest that project proponents make an effort to secure external financing first and fall back on own resources only if they are unsuccessful in closing the entire gap with external resources.

Table 16: Sources of Financing to Close the "Gap" after Initial Rejection by Fund

Source of financing	National Fund		EcoFund	
	Only source	One of multiple sources	Only source	One of multiple sources
Own resources	43	35	9	31
National Fund	N/A	N/A	3	19
EcoFund	-	2	N/A	N/A
Regional Fund	6	23	1	26
BOS	2	6	-	7
Budget	8	23	1	6
Other	9	12	1	13

The types of external sources from which gap financing was secured by rejected applicants is dominated by institutions which provide grants or soft loans. In 81 cases, respondents closed the financing gap with assistance from the National Fund (EcoFund respondents), regional environmental funds, or EcoFund (National Fund respondents). All three of these funds provide grants and the National and regional funds provide soft loans. Another major source of gap financing was grants from state, regional or municipal government budgets. Thirty-eight respondents reported using this source for gap financing. Fifteen respondents reported gap financing in the form of loans from BOS. It is likely that these loans were softened by the National Fund or regional funds through the provision of interest rate subsidies. "Other" sources of financing include a range of institutions providing grants. Other bank financing is included in

“other” sources. However, only two respondents indicated they secured gap financing through commercial loans. Thus, it appears that the most common sources of gap financing included own resources and subsidized sources of financing.

Conclusions

1. Although the rejection of applications created a financing gap, a large majority of project proponents either proceeded with their projects or simply postponed projects until suitable gap financing could be obtained. Preferred gap financing appears to be subsidized financing offered by other funds and sources, but own resources have played an important role in closing the gap. A key finding is that even though most project proponents were under no direct pressure to undertake investments to correct a non-compliance situation, they nevertheless continued projects even if own resources were required to close the gap.
2. Generally, it appears that gap financing used to replace funding from the National Fund and EcoFund is less subsidized than the financing provided by these Funds, given the important role of enterprises' own resources. With few exceptions, proponents of rejected applications do not appear to have closed the financing gap using commercial credit. However, by closing the financing gap with own resources, enterprises may be drawing capital away from economically-motivated investments. In addition, investors may use own resources to close the financing gap on environmental projects and borrow in commercial markets to support economic investments, recognizing the difficulty of securing commercial credit for projects with net costs.
3. After the application is rejected, an enterprise appears to have adequate time to revise and resubmit the application or to postpone the project to identify and secure alternative gap financing. Partly, this result can be attributed to the fact that many of the respondents either were in compliance with environmental regulations or had requested deferral of penalties for up to five years to enable them to develop and implement projects to remedy non-compliance.
4. It does not appear that the lack of gap financing has contributed to the incidence of abandoned projects. First, only eleven percent of rejected applications had been abandoned a year later. Second, the financing gap was only one-tenth as large for the abandoned projects as for projects in the survey as a group. Virtually all of the abandoned project proponents were already in compliance with environmental requirements. It seems more likely that the proponents of the abandoned projects were unwilling to undertake these projects without a substantial share of project costs defrayed through direct grants.
5. It is difficult to determine whether a firm which is in a deferred penalty status is more or less likely to close the financing gap using less subsidized financing. First, there were a surprisingly small number of projects with deferred penalty status. A large percentage of projects that were either complying or violating requirements were undertaken by the end of 1995. Thus, it is difficult to determine how important a role deferred penalty status plays in encouraging the investor to use less subsidized financing to close the gap.
6. Proponents of rejected applications appeared to be quite receptive to comments received in writing from the funds. A substantial number of applicants changed the technology, scaled down projects and reduced costs, or simply responded to concerns about the proposal in revising the application and resubmitting. Funds should be encouraged to provide written comments to investors when their applications are rejected.
7. Many critics of funds have suggested that the availability of subsidized financing discourages the formation of capital markets to service environmental investments. The results from this survey lend

some support to this argument, although caveats are necessary. At least in 1995, there appears to have been adequate subsidized financing in Poland to enable proponents to close the financing gap after being turned down for financing by the National Fund or EcoFund. However, these sources have needed to be supplemented by own resources to close the financing gap. There is no evidence that the group of proponents surveyed utilized commercial credit to secure financing of the gap.

8. The impact of funds on capital markets is difficult to assess because of the interaction of supply and demand for capital. As noted in the introduction, capital markets are not well developed in the CEE region and the cost of capital (when available) tends to be quite high. In addition, environmental investments have not traditionally been attractive to lenders or providers of other equity unless they provide rates of return that are comparable to other investments. Thus, it is not clear that capital markets are particularly interested in servicing environmental investments unless the proponent is willing to pay competitive interest rates or a donor is prepared to buy down interest rates. Also, the demand for commercial credit among proponents of environmental investments appears to be weak. Partly, this results from the availability of subsidized financing *vis a vis* the number of **well-prepared** projects. With lax enforcement, coupled with a limited number of good projects, investors have time to search for affordable financing. As CEE countries redouble enforcement efforts, the demand for financing will increase to the point that investors may need to tap into capital markets for at least some of their financing needs.
9. Is financing provided by funds too generous or too restrictive? This is the question posed in the title of the paper. At least for the group of applicants we surveyed, it could be argued that – had they originally received funding instead of being rejected – the financing could be viewed as too generous since a majority of these applicants were able to secure gap financing in a short period following rejection. Can a fund tell in advance which projects really need its support? The EcoFund, in appraising projects, attempts to determine whether financing from EcoFund is essential to the project going forward. If EcoFund determines that an applicant has access to adequate resources to undertake the project, absent EcoFund support, it may reject the application if there are other projects of similar quality for which EcoFund support is critical. As far as we know, the National Fund does not consider this issue in deciding whether to provide financing. Thus, it is quite likely that the National Fund provides financing for some projects that could be financed absent support from the National Fund. If this is the case, then the National Fund could reduce its co-financing share and/or reduce the softness of its support without choking off demand among investors. As Poland moves closer to a market economy and many of the imperfections in capital markets disappear, the Funds should reassess financing terms and increase the leveraging of their resources.
10. The survey results thus suggest that increased spending from environmental funds would only marginally increase the number of projects undertaken. This, however, does not imply that it would be useless to expand the funds' budgets. It merely highlights the existence of a "saturation" level of co-financing by public funds **given the current demand** for environmental investment. The current level of investment seems still far from the social optimum, but it can be pushed toward this optimum more effectively through better enforcement and other actions which increase "demand" rather than by channeling more public money to investments under the existing policies.

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Appendix Rejected Projects Survey

This survey is designed to examine the fate of important environmental protection projects that were rejected by the {National Fund} {Regional ... Fund} {Ecofund}. According to the files of the fund, your project proposal was not accepted for financing. We would like therefore to study the fate of your project since the negative decision of the fund was communicated to you. The survey is sponsored by the Harvard Institute for International Development. We assure confidentiality and guarantee that any specific firm-related information you will provide us with will not be disclosed. The results of the survey will be published in a statistical form only.

1. Have you received a written decision of the fund's board informing about the rejection?

☐ Yes
 ☐ No

2. Was there stated any specific reason for rejection?

☐ Yes
 ☐ No

 If "yes", please state that reason

3. What was the amount of funding you requested?

..... PLN

4. What percentage of the total project cost did you request?

... %

5. What form of support did you apply for?

☐ grant
☐ equity
☐ soft-loan

 If soft-loan, what was the interest rate applied for?

- 6a. At the time of the application were you in compliance with current regulations?

☐ Yes
 ☐ No

- 6b. If "no", please indicate whether you received the deferment of your non-compliance penalties at that time?

☐ Yes
 ☐ No

- 6c. If "yes", please indicate what was the deadline for you to attain compliance and what were the annual amounts of the deferred non-compliance penalties

Deadline:

Deferred penalties: PLN in 199.,
 PLN in 9., PLN in 9., PLN in 9., PLN in 9.

7. Who prepared the project proposal?
- ☐ Company officers ☐ Hired consultant
If a consultant was hired, please state the name of the company:
8. Was the project abandoned?
- ☐ Yes ☐ No
If "yes", please indicate what were or have been the implications for your business; *go to 13*
.....
9. Was the project postponed?
- ☐ Yes ☐ No
If "yes", please indicate for how long, how do you plan to resume it; *go to 13*

Postponement:
Planned solution:
10. After your application was rejected, did you proceed with the planned investment using other financing?
- ☐ Yes ☐ No
If "yes", please indicate how you closed the financing "gap", *and go to 13*

Substitute funding:
11. Did you resubmit the application for funding?
- ☐ Yes ☐ No
a. If "yes", please indicate to which fund you submitted the application, b. the types of changes (if any) made, and c. whether your application was successful; *then go to 13*

Application submitted to:
Changes to the original (rejected) application:
Support received (type, amount, cost):
12. Have you prepared, or do you plan to prepare, a modified project proposal?
- ☐ Yes ☐ No
If "yes", please indicate and briefly describe what changes you plan/made
- ☐ alternative technology
☐ scaled down project
☐ divided into smaller investments or implemented in phases
☐ other (what)
13. Any other remarks

Table A1: National Fund - 1994 applications (billion PLZ)

Project Category	Number	Total Cost	Amount to be financed	Financing share
Air protection	419	49200	8500	17%
Water protection	426	22700	4600	20%
Waste disposal	57	2154	540	25%
Nature conservation	136	1892	1132	60%
Other	558	1858	672	36%
Total	1596	77804	15444	20%

Table A2: National Fund - applications accepted in 1994 (billion PLZ)

Project Category	Number	Total Cost	Amount to be financed	Financing share
Air protection	226		4700	21% ^a
Water protection	227		1170	27% ^b
Waste disposal	40		370	33% ^c
Nature conservation	61	1126	259	23%
Other	276	957	460	48%
Total	830	30000 ^d	6959	23% ^d

^a Based on 153 contracts signed in 1994^b Based on 203 contracts signed in 1994^c Based on 30 contracts signed in 1994^d Authors' estimate**Table A3: National Fund - rejected survey applications in 1994 (billion PLZ)**

Project Category	Number	Total Cost	Amount to be financed	Financing share
Air protection	30	262.7	127.4	49%
Water protection	83	4956.5 ^a	1936.1 ^a	39% ^a
Waste disposal	21	322.2 ^b	131.9 ^b	41% ^b
Nature conservation	24	84.8 ^c	35.7 ^c	42% ^c
Other	16	258.4 ^d	154.8 ^d	60% ^d
Total	174	5884.6 ^e	2385.9 ^e	41% ^e

^a Based on 76 applications in survey^b Based on 20 applications in survey^c Based on 20 applications in survey^d Based on 14 applications in survey^e Based on 160 applications in survey**Table A4: EcoFund - 1994 applications (billion PLZ)**

Project Category	Number	Total Cost	Amount to be financed	Financing share
Air protection	6	949.2	350.9	37%
Baltic Sea	51 ^a	6137.2	1150.0	19%
Climate protection	37 ^b	1700.1	394.0	23%
Biodiversity	19	149.5	29.2	20%
Other	6	139.1	28.4	20%
Total	119 ^c	9075.0	1952.5	22%

^a Cost information was available for 48 projects only^b Cost information was available for 33 projects only^c Cost information was available for 112 projects only